Abstract Submitted
for the DFD13 Meeting of
The American Physical Society

**Erosion and transport of particulates by forced jet impinging jet on a mobile sediment bed**[1] KYLE CORFMAN, RAHUL MULINTI, KENNETH KIGER, University of Maryland — The work reports on the erosion and suspended flux characteristics of a forced impinging jet, as a prototypical surrogate to better understand the problem of rotorcraft brownout. Coherent vortex rings are generated through oscillatory forcing of a vertical impinging jet onto a sediment bed. Early in the flow development, annular ripple dunes are formed and steadily grow, the wavelength and growth rate depending largely on the particle size and flow conditions. In order to provide a reliable prediction of erosion for more realistic flows, such as those found in rotorcrafts, a parametric study was performed for several particle sizes and mixtures. PTV is used to correlate vertical and horizontal fluxes with resulting changes in the ground profiles. A single-phase PIV study detailing the changes in the vortex ring characteristics after the bed has reached a stable erosion pattern is also reported.

[1]This work is supported by the AFSOR under grant FA95500810406.

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Date submitted: 01 Aug 2013 Electronic form version 1.4